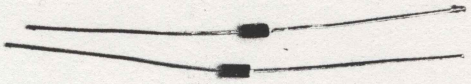

ADDITIONAL INFORMATION FOR UPGRADING IM-1

1. If this change is to be used with the building BLOCK one additional change has to be made in the circuit. Refer to D-4, you will find a circuit run which connects to U7 pin 9 and goes under C54 and then disappears under 30 pin to 1000 connector, this run will have to be cut. Any place is ok but I recommend around C54. On D-5 this signal is $\overline{\overline{\text{CD}}}$ going out to 50 pin expansion plug.

Enclosed also are 2 diodes you can use in this change.

GOOD LUCK WITH THE CHANGE.

IF YOU HAVE ANY IDEAS FOR CHANGES AND WOULD LIKE SOME HELP LET ME KNOW.

HERE IS A LIST OF CHANGES I AM WORKING ON NOW.

1. Expand memory to 24k.
2. change vector addresses FFF0-FFFF to Ram to allow changing on the fly.
3. Machine language routines for SQR, SIN, TAN, COS, and others.
4. Change all ROM memory to RAM to allow changing of BASIC

[illegible]
03 Willard
Springdale,
Arkansas 72764

UPGRADE OF APF IMAGINATION MACHINE FROM 8K RAM TO 16K

This change should only be done by someone with some technical experience.

ALL WORK SHOULD BE DONE IN A STATIC FREE AREA!

Parts Required
1. 1 27K OHM ¼ watt Resistor
2. 2 1N4002 Diodes
3. 6 Inches of 30 gauge single strand wire
4. 8 Ram Chips 8144WP or equiv.
   See enclosed AD for source of chips.
   I have also seen AD's in other Magazines for the chips.

After opening your IM-1 do the following.
Refer to figures D3 and D4 enclosed.
1. On D4 find jumper in the middle of the board and remove end labeled A .
2. On D4 find R6 and remove from the board end labeled B . Be careful not to break resistor.
3. Next step is to put R6A,D1 and D2 togeather. This can be done by twisting 3 leads togeather and soldering. Be sure and tie the anode end of diodes togeather(Non-banded end). Cut of excess end of this junction leaving 1/3 inch of lead.
4. Now insert one of the leads from Diodes into hole that R6 was removed from in step 2. Solder and cut of excess lead.
5. NExt attach R6A(new resistor) to 5 volts. This can be done at U4 pin 14. Attach free end of R6A.
6. Next attach about 3 inches of wire to last diode and solder. Attach other end of wire to U5 pin 11. Careful not to overheat U5 or diode.
7. Next you attach R6 to the junction of R6A,D1 and D2 made in step 3 . Careful not to overheat or break componets.
8. Next step is to add wire to jumper removed in step 1 and solder. Then solder other end of wire to U7 pin 1.
9. Last step is remove U11 through U18 and replace with new chips. Save old chips for possible later use.

AFTER DOING ALL OF THE SOLDERING CHECK FOR SOLDER SPLASHES AND SHORTS.

When this change has been installed you will probably have problems loading old programs and might have to POKE 41446,191 to load it.

If you have any problems please contact me and I will try to help you.

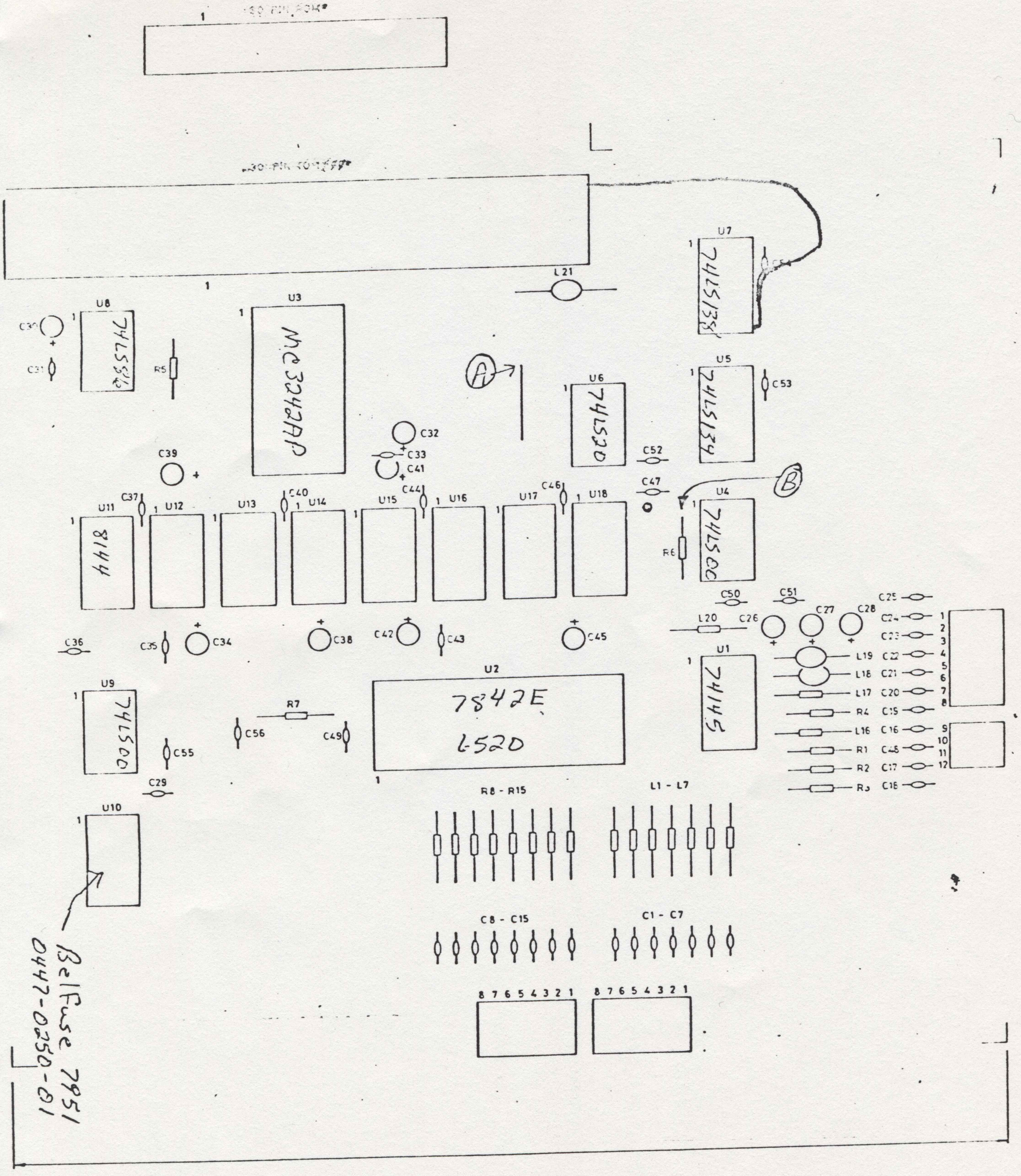

Figure D-4
MPA-10 Main Board Parts Layout

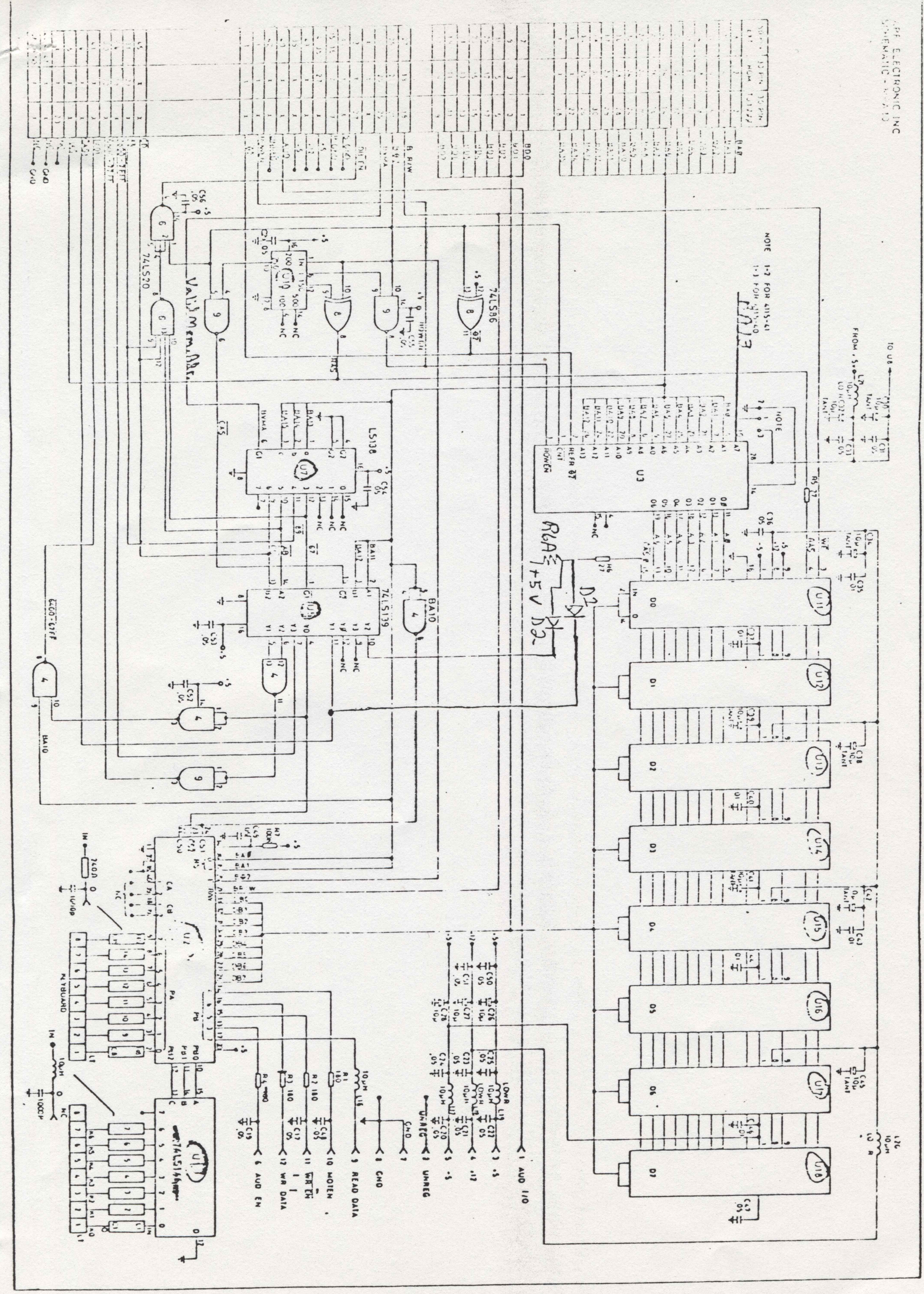

Figure D-3
MPA-10 Main Board Schematic